IN THE CLAIMS

1. (Currently amended) A method for distinguishing malignant from benign thyroid samples, comprising:

   determining presence of a T →A transversion at nucleotide 1796 of *BRAF* according to SEQ ID NO: 1 in a thyroid sample of a human, wherein presence of the transversion indicates a malignant ~~thyroid~~ neoplasm and absence of the transversion indicates a benign neoplasm or sample.

2. (Original) The method of claim 1 wherein the thyroid sample is a fine needle aspirate (FNA).
3. (Original) The method of claim 1 wherein the thyroid sample is a tissue sample.
4. (Original) The method of claim 1 wherein the thyroid sample is a cytological sample.
5. (Original) The method of claim 1 further comprising:

   providing a diagnosis based on the presence or absence of the transversion.

6. (Original) The method of claim 1 further comprising:

   providing a prognosis based on the presence or absence of the transversion.

7. (Original) The method of claim 1 further comprising:

   determining a therapeutic regimen for the human using as a factor the presence or absence of the transversion.

8. (Original) The method of claim 3 wherein the sample has a follicular morphology.
9. (Original) The method of claim 3 wherein the sample as a papillary morphology.
10. (Currently amended) A method for distinguishing malignant from benign thyroid samples, comprising:

    determining presence of a T →A transversion at nucleotide 1796 of *BRAF* according to SEQ ID NO: 1 in a blood sample of a human <u>suspected of having a thyroid neoplasm</u>, wherein presence of the transversion indicates a malignant thyroid neoplasm in the human and absence of the transversion indicates a benign <u>thyroid</u> neoplasm or no neoplasm.

11. (Currently amended) A method for detecting a T →A transversion mutation at nucleotide 1796 of *BRAF* according to SEQ ID NO: 1, comprising:

amplifying all or part of exon 15 of *BRAF* from a test sample to form amplified products, wherein said part comprises at least nucleotides 1792 to 1799 of *BRAF*;

digesting the amplified products with restriction endonuclease TspRI to form digested products;

identifying a mutation at nucleotide 1796 if the digested products contain:

- one fragment fewer than digested products formed when using wild-type *BRAF* as a template for amplifying and digesting; or
- one additional fragment compared to digested products formed when using wild-type *BRAF* as a template for amplifying or digesting.

12. (Original) The method of claim 11 wherein the test sample is from a thyroid.

13. (Original) The method of claim 11 wherein the test sample is an FNA from a thyroid.

14. (Original) The method of claim 11 wherein the test sample is a tissue sample from a thyroid.

15. (Withdrawn) A method of treating a thyroid cancer patient, comprising:

administering to the patient an effective amount of an inhibitor of BRAF serine/threonine kinase.

16. (Withdrawn) The method of claim 15 wherein the inhibitor is an antibody which binds to BRAF serine/threonine kinase.

17. (Withdrawn) The method of claim 15 wherein the inhibitor is an antisense oligonucleotide which is complementary to mRNA encoding BRAF serine/threonine kinase.

18. (Withdrawn) The method of claim 15 wherein the inhibitor is siRNA which is complementary to mRNA encoding BRAF serine/threonine kinase.

19. (Withdrawn) The method of claim 15 wherein the inhibitor is an antisense oligonucleotide which is made from an antisense construct.

20. (Withdrawn) A method of treating a thyroid cancer patient, comprising:

administering to the patient an effective amount of an inhibitor of Ras-Raf-MAPK pathway or Raf/MEK/ERK signaling pathway.

21. (Withdrawn) The method of claim 20 wherein the inhibitor is CI 1040.

22. (Withdrawn) The method of claim 20 wherein the inhibitor is BAY 43-9006.

23. (Withdrawn) The method of claim 6 wherein the presence of the transversion indicates a higher risk of neck lymph node metastasis.

24. (Withdrawn) The method of claim 6 wherein the presence of the transversion indicates a higher risk of cancer recurrence.